



THE SUMMER OF 1988

A time to burn

By the 1980s, about a third of Yellowstone's forests were more than 250 years old and reaching their most flammable stage. While it was only a question of time before they would burn, it could have been a matter of weeks or years. It was a question of when a summer with the right conditions would arrive. Although 1979 and 1981 had relatively active fire seasons, with a total of more than 30,000 acres burned, for the last decade Yellowstone had generally been having dry winters and wet summers.

Drought Sets In

By the end of 1987, the greater Yellowstone area was in a mild drought. That winter's snowpack was only 31% of the long-term average, but precipitation was 155% of the average in April and 181% of the average in May. The 20 lightning-caused fires that started in the park in late May and early June were each evaluated before being allowed to burn, and 11 soon went out on their own. Others were still smoldering in mid-June, when the weather turned dry again, but as late as July 11, the National Weather Service was predicting normal July rainfall for the area.¹

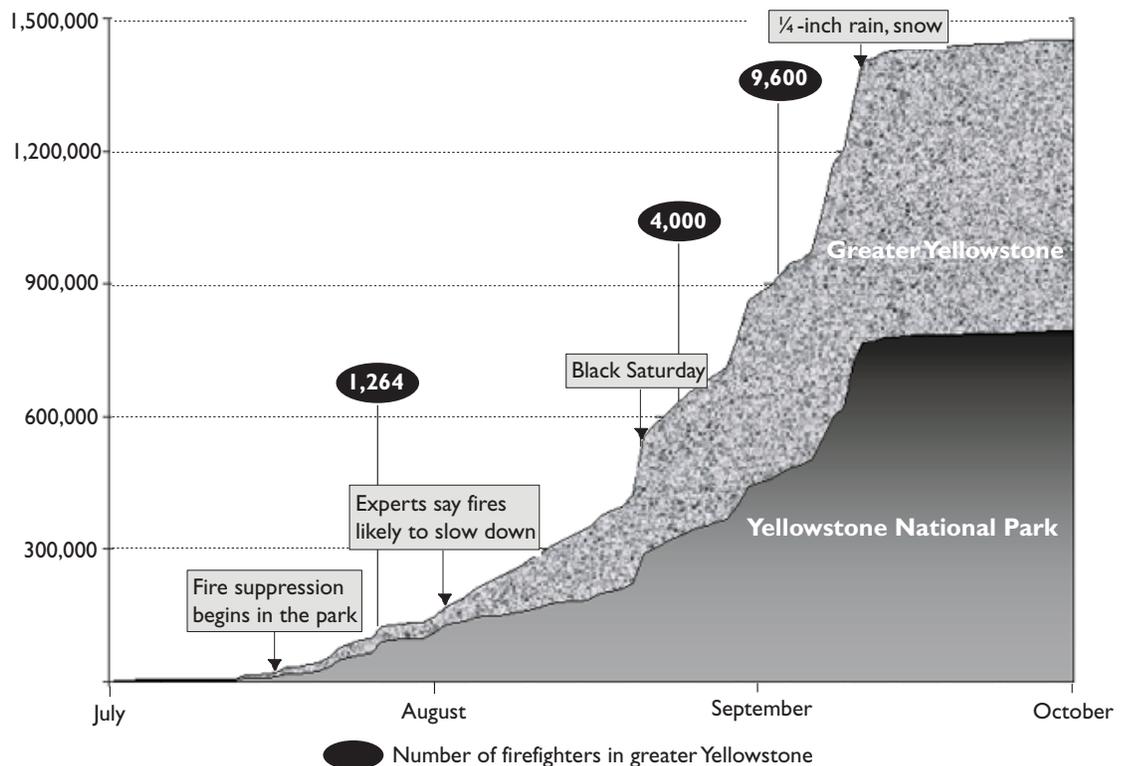
In late July, a team of fire-behavior experts met for two days in West Yellowstone to forecast fire activity for the coming month, the first time such a lengthy forecast had been attempted. Information about historical weather patterns, fire behavior, and the ages of the forests in the path of the fires was fed into a computer to generate a map in which 43 configurations of colors and symbols showed the location of Yellowstone's vegetation zones. When the fire managers assembled on August 2 to make decisions about allocating crews and equipment, the experts estimated that nearly 150,000 acres in greater Yellowstone had burned and that although "as much as another 100,000 acres" could be added to the tally, they predicted the worst was over "because of shortages of fuel."²

A lesson in humility.

But by the time the greater Yellowstone fires had all gone out, they had burned about 1.4 million acres and all types of vegetative fuel. Where the experts went wrong was in underestimating the influence of the weather and over-estimating the effect that multi-aged forest stands would have in limiting the spread of fire. The summer of 1988 turned out to be the driest in the entire 112 years of park records: precipitation for June, July, and August was 36% of the long-term average. The relative humidity in greater Yellowstone was consistently below 20% and occasionally below 10%, reaching a record low of 6% in the park at Tower Falls on August 22. As the humidity dropped, so did the fuel moisture content, sometimes as low as 5% in downed trees, making the vegetation more flammable.³ July and August also brought dry storms with more than double the usual number of lightning strikes and flame-fanning winds up to 60 miles per hour, but none of the rain that would have extinguished or at least limited the extent of fires in a more typical summer.

It was a heavy fire season throughout the West, with more than 3.7 million acres burned in the lower 48 states and several million more in Alaska. By August, more than 15,000 firefighters were at work across the country, many of them in greater Yellowstone, where more than half of the total burned area was initially ignited by fires that started outside the park.

Acres Burned in 1988



This graph shows the relative increase in burned area in greater Yellowstone from July 1 to October 1, 1988, as derived from both the estimated daily growth in the fire perimeter and the total burned area estimated after the fires were out. To eliminate large unburned patches from the estimate, the park was surveyed at a smaller scale than the rest of greater Yellowstone, for which the estimate is therefore even more approximate.

Although the fires' size, remoteness, and smoke made precise mapping impossible, the National Park Service worked with the U.S. Forest Service to map daily fire advances. The position of the fires was estimated by incorporating data from aircraft using infrared scanners, satellite imagery, ground surveys, and reconnaissance flights.

Measuring the burned area.

Both during and after the fires, a variety of methods were used to measure the burned area and widely varying estimates were obtained. Some differences can be accounted for by the scale at which an area was examined; a "fire perimeter" will include large patches of unburned area, and burned area may be mistaken for unburned area when interpreting aerial photographs or satellite data. In October 1988, an interagency team from the National Park Service, the U.S. Forest Service, the National Aeronautics and Space Administration, and Montana State University conducted three flights to obtain infrared photography at a nominal scale of 1:63,360 and followed up with ground investigations to develop a map of the burned areas with a unit size of 200 acres. They estimated that the burned area covered 1,405,775 acres,⁴ not including three fires that lay entirely outside the boundary of Yellowstone National Park (Hunter, Fayette, and Corral Creek), which totalled approximately 47,000 acres.⁵ Richard Rothermel of the U.S. Forest Service later arrived at an estimate of nearly 1.7 million acres for the entire greater Yellowstone area, but his focus was on daily fire growth and excluded only the largest unburned patches within the fire perimeter.⁶

The fire maps created using satellite data suggest that most of the burned area lay within the park's boundaries, and preliminary estimates of nearly 1 million acres burned in the park have appeared in many descriptions of the fires. However, a presumably more accurate estimate of 793,880 acres (36% of the park) was determined in 1989 using ground surveys, satellite data obtained in October 1988, infrared photography at a scale of 1:24,000, and a minimum map unit size of 5 acres.⁷

Fire behavior is affected by the weather, available fuels, and topography—the lay of the land, especially the steepness of the slopes, their elevation and the direction they face, which affects what grows there and the impact of winds. In 1988, wind played a major role in determining which areas and how much area burned. The fires often advanced 5 to 10 miles a day, even through less flammable vegetation that would not have burned in a more typical fire season. On "Black Saturday," August 20, wind-driven flames pushed the fire across another 150,000 acres, and ash fell on Billings, Montana, 60 miles northeast of the

The role of wind.

Burned Area Within Yellowstone National Park

Burn Type	Acres	Percent of Park
• Crown fire: consuming the forest canopy, needles, and ground cover and debris	323,291	15%
• Mixed: mixture of burn types in areas where most of ground surface was burned	281,098	13%
• Meadows, sagebrush, and grassland	51,301	2%
• Undifferentiated: variety of burn types	37,202	2%
• Undelineated: surface burns not detectable by satellite because under unburned canopy	100,988	4%
Total Burned Area	793,880	36%
Total Unburned Area	1,427,920	64%

Data from the Geographic Information Systems Laboratory, Yellowstone National Park, 1989

nearest fire. Airplanes and helicopters were grounded, and the fires grew so intense that all attempts to slow them were futile. Some fires generated enough energy to create their own windstorms, putting up convection columns with cumulus cloud caps; hot air rising from the fires drew the flames even higher. Battered by these windstorms, many trees had already toppled when the flames reached them.

About 40% of the burned area in the park (15% of the total park acreage) underwent a crown fire, which has the biggest visual and long-term impact on the landscape. Nearly all of the burned areas (95%) had been forested before the fires; the remainder was a mix of meadow, grassland, and sagebrush.⁸

How “Natural” Were the 1988 Fires?

The fire policy that Yellowstone initiated in 1972 is referred to as “natural” fire management because it permits certain lightning-caused fires to run their course. However, it was understood that the park’s fire regime would continue to be affected by human activities, including accidental ignitions and the need to put out fires that threaten human lives or property. It is impossible to know exactly how much the 1988 fires’ timing, severity, and pattern were affected by the variety of human interventions that occurred in Yellowstone before and during the fires. The large size of the fires was blamed by some people on the park’s “natural” fire policy, and by others on the park’s previous “unnatural” policy of fire suppression that created artificially high accumulations of fuel. Both groups may have assumed that humans have more control over this force of nature than they actually do.

The legacy of fire suppression.

In the heat of the moment, park managers on the defensive were apt to attribute the magnitude of the 1988 fires at least in part to the suppression policies of their predecessors. But in the more careful post-fire assessment, it was recognized that effective suppression had been possible for only about 30 years. In forests where trees live to be hundreds of years old, this had not been long enough to add significantly to the fuel accumulation, and during extreme burning conditions such as those of 1988, crown fires burned irrespective of fuel loads. The fact that the first 16 years under the natural fire management had passed without any large fires also seemed to belie the possibility that fire suppression had created a monster out of accumulating fuel loads.⁹ On Yellowstone’s northern range grasslands, where fires occur more frequently and fire suppression efforts had been effective for a longer period of time, the resulting higher fuel loads could have affected fire intensity and behavior, but these were among the last areas to burn in 1988 and only a small portion of the total burned area.



Digging a fireline: at left, in 1933; above, in 1988.

After looking at historical records on weather, lightning ignitions, and fuel loads, Romme and Despain determined that Yellowstone's forests were probably ready to produce large fires in the type of dry summer that occurred six times between 1946 and 1966, and that such fires may have been postponed for several decades because of fire suppression.¹⁰ They also believed that, as a result of fire suppression, more area burned in a single summer rather than over a period of years, as occurred during the last large forest fires in Yellowstone, in the late 1600s and early 1700s. Areas that have recently burned can serve as fire breaks, and if there had been no fire suppression, Yellowstone would have had more such areas in 1988.

But it is unclear how much difference having more recent fires would have made, since virtually all vegetation types burned in 1988. By late summer, the unusual drought and wind conditions were pushing fires through or over areas of up to nearly 4,000 acres that had burned 10 to 50 years before, and embers carried the fire over areas more than a mile wide. Although fire suppression may have had some influence on the spread and severity of fires in 1988, Romme and Despain concluded that the large scale of the fires was primarily due to the coincidence of an extremely dry and windy summer with fuel that had accumulated for hundreds of years through natural plant succession. Although Yellowstone had become highly vulnerable to large fires because of the age of its forests, that vulnerability was part of the area's ecology, not a result of human intervention.¹¹

It is also unclear whether the 1988 fire suppression efforts had any significant impact on the extent of fires outside developed areas. Firefighters were unable to extinguish any of the large fires, but they may have altered fire patterns somewhat through the use of backfires, which are deliberately set to reduce fuel in front of an advancing fire front.

Two of the largest 1988 fires, the North Fork and the Hellroaring, began with acts of human negligence—a tossed cigarette and an untended campfire. The Huck fire, which was ignited when a tree fell on a power line, was also considered “human-caused.” However, during a summer when the park was recording up to 2,000 lightning strikes a day, the weather conditions and age of the forests had made them so flammable that lightning-caused fires could easily have started in or spread to these same areas.¹² As with fire suppression and “artificial” fuel loads, it is impossible to determine to what extent these “artificially” started fires may have affected the results of the 1988 fire season in Yellowstone.

The role of human-caused fires.

A Theory of Natural Relativity

“Some human interventions are more, others less natural, depending on the degree to which they fit in with, mimic, or restore spontaneous nature. Any paint on a campground water tank is unnatural, but green is more natural than chartreuse. Restoration of wolves as predators would be more natural than culling elk by sharpshooters.

“Given these distinctions, it does not help to label all restored nature faked, myth, or ideology. Compared with pristine nature, there is diminished naturalness, but the naturalness that remains is not illusory. A broken arm, reset and healed, is relatively more natural than an artificial limb, though both have been medically manipulated. Except for hairline bone scars it may be indistinguishable from the arm nature gave. Likewise with a restored forest or range, the historical genesis has been partially interrupted. But henceforth, spontaneous nature takes over as before. Trees blow over in storms, coyotes hunt ground squirrels, lightning causes burns, natural selection resumes...”

— From “Biology and Philosophy in Yellowstone,” by Holmes Rolston, III, Department of Philosophy, Colorado State University, 1989

The Fires as a Human Adversary

The first fire suppression efforts of the 1988 season in greater Yellowstone began on July 2 in the Gallatin National Forest north of the park, when the decision was made to counter the Storm Creek fire that had been burning for several weeks. By July 12, when lightning ignited the Falls fire near the park's south boundary, about 6,000 acres had burned in greater Yellowstone and nine fires were blazing in the park without human opposition. On July 15, when the park's public affairs office began distributing the first map of the fires, most looked like specks on Yellowstone's vast rectangle; two were still less than an acre in size.

Although the U.S. Forest Service (USFS) had specific criteria regarding fuel moisture, fire size, and location that dictated when fire suppression must begin, the National Park Service (NPS) did not. Instead, the decision of when to declare a fire "out of prescription" was left to a committee of park managers, and they had agreements with the surrounding national forests to allow certain fires to cross mutual boundaries. On July 13, when USFS Supervisor John Burns notified Yellowstone Superintendent Robert Barbee that the Targhee National Forest would not "accept" the Falls fire, the interagency rules required Barbee to stop the fire before it reached the Targhee. This fact of bureaucratic life as well as mounting public pressure led to Barbee's announcement on July 15 that all new fires in the park would be suppressed unless they were lightning ignitions adjacent to existing fires.

On July 21, when fires had crossed about 17,000 acres of greater Yellowstone and were threatening Grant Village, West Thumb, and Lewis Lake Campground, the NPS and the USFS officially joined forces to counter all fires, both new and existing. The North Fork fire began the next day when a woodcutter left a smoking cigarette in the Targhee National Forest less than 200 yards west of the park, which it entered within hours, eventually becoming the largest fire in greater Yellowstone and causing more damage to park facilities than the other fires combined.



The dressed-for-success Yellowstone firefighter: at left, 1936; at right, 1988.

Once the decision to try to suppress all fires had been made, three factors determined how and where that effort was undertaken: the safety of the firefighters (no one wanted to put crews at the head of potentially lethal blazes); the availability of resources (there were not enough experienced crews and equipment to safely manage all the fires in greater Yellowstone, so priority was given to those threatening communities, private property, and park facilities); and land management policy.¹³ In national park and national forest wilderness areas such as the Absaroka-Beartooth, established policies sought to minimize the “unnatural” damage to the landscape that would be caused by the use of motorized equipment, fire camps, and other fire suppression activities.

Fire suppression techniques.

Within these constraints, the most modern technology available was used: fire commanders received infrared maps made during high altitude flights the preceding night; helicopters and air tankers dropped water and flame retardant on the flames. But although wearing better protective gear, many firefighters were doing exactly what prehistoric people would have done to protect their homes from an approaching fire: remove small trees and low limbs that could provide fuel for a surface fire and create a fire break by clearing a line of all burnable ground cover. This is slow and laborious work using hand tools, but considered the only reasonable option in the park’s backcountry; teams of pack horses and mules hauled supplies to spike camps where firefighters slept on the ground. Even in more accessible areas, the use of bulldozers and explosives, which cause more enduring scars to the soil than does fire, was regarded as a last ditch effort. It was hoped that natural features such as open meadows, cliffs, rivers, and lakes would serve as natural firebreaks.

While many firefighters accepted the principles of natural fire management, others were confused by or critical of the “light hand on the land” approach to fire suppression and park managers’ occasional obstinacy in enforcing regulations. In one incident, a park ranger threatened to ticket a California Division of Forestry crew for driving a truck across a meadow to fight a fire.¹⁴

But sometimes even chainsaws and bulldozers cannot stop a fire on the move. Attempts to create a firebreak by digging lines or setting “burnouts” in front of an advancing fire were ineffective in conditions where winds quickly carried embers across unburned areas to jumpstart another fire a mile away in another tinderbox of dry fuel. In late August, one flank of the North Fork fire broke over a containment line that had held for a month. Most of the hundreds of miles of fireline dug in greater Yellowstone in 1988 could not halt fires that were capable of hurdling the Grand Canyon of the Yellowstone, unvegetated geyser basins, highways, and parking lots. When a fire reaches that intensity, it is not only impossible to contain, but foolhardy to try, for a fire crew in front of the advancing flames can easily be overrun or trapped between fires.

When bulldozers aren’t enough.

How a Forest Fire Grows

Once a fire is ignited, it spreads until it runs out of flammable fuel. Until then, its behavior may vary enormously and unpredictably. A fire may spread rapidly through fine, dry fuels and slowly in coarse or moist fuels. Slow fires that burn the ground cover and spread within the forest duff, sustained by glowing combustion, may advance only inches a day, leaving the upper tree crowns untouched and the trees alive. Faster fires spread through the grass, herbs, and dead twigs with a flaming front, and may be driven rapidly upslope by wind. If the fire has enough fuel from shrubs and small trees, it may become more intense and spread to the tree crowns in abrupt surges, responding to its own wind system. When the fire is “crowning,” it can spread rapidly from one treetop to another, and sparks from exploding trees may ignite new fires meters or miles away. In 1988, extreme weather conditions eliminated the need for smaller trees to serve as “fire ladders,” and crown fires burned irrespective of fuel loads.

Although a fire will typically “lay down” at night as the temperature drops and the humidity rises, in the summer of 1988, Yellowstone’s fires refused to go to bed. The humidity often remained low at night and the fires active, adding to the danger of falling trees for night crews and the impossibility of holding fires behind lines constructed during the day.

The strategy therefore gradually shifted from one of traditional “perimeter control” to protection of lives and property in the fires’ advancing path. Some new ignitions were not suppressed because of the lack of available crews and equipment, concern for firefighter safety, or the likelihood that they would soon burn into existing fires anyway. After the North Fork fire came through Madison Junction on August 15 and vaulted the Gibbon River, crews were sent to prepare the Norris Geyser Museum and Canyon Village by thinning the surrounding woods, carting away dead timber, and dousing the buildings with fire retardant. Others were dropped off in the backcountry by helicopter to hike with gas cans, water bags, shovels, chainsaws and other heavy equipment, cut several miles of line, return to their drop-off point, and then get up at 5 A.M. to do the same thing the next day.

Sending in the Marines.

By mid-August, when the Boise Interagency Fire Center requested assistance from the Department of Defense, many of the 3,500 firefighters in the Yellowstone area had been working 14 hours a day for weeks with few days off.¹⁵ The military began putting soldiers through a two-day course in firefighting, and on August 23 the first two Army battalions arrived at Yellowstone with eight helicopters. Three days later, it was announced that, because the fire situation was worsening all over the West, some of the regular fire crews and aircraft were going to be pulled out of Yellowstone for deployment where human lives and property were at greater risk. But more military personnel continued to arrive in Yellowstone—the Army, the Navy, the Air Force, the Marines, and the Wyoming National Guard—their numbers cresting on September 17 at 4,146 in uniform, heightening the perception that Yellowstone was a place under siege.

Local residents also pitched in to help. On September 5, the same day that the total number of firefighters in greater Yellowstone peaked at about 9,600, farmers and college students arrived at West Yellowstone with trucks of irrigation equipment and a water cannon to dampen 700 acres of forest, creating a buffer zone between the town and the North Fork fire, and saving the electrical substation that powered the buildings at Old Faithful.

While some people remained convinced that not enough was being done to put the fires out, others felt that the effort to suppress the fires was a waste of money that the federal agencies involved had to undertake for the sake of their public image. Those who favored letting the fires take their course objected that firefighters should not risk their lives to save something that was not meant to be saved. In the gateway communities and ranches outside the park, flames of suspicion were fanned: park managers didn’t actually want the fires suppressed; it was a plot, a radical environmentalist conspiracy to wipe the tourist-oriented gateway communities off the map. Such fears were not entirely irrational, given the



Fighting fire with water (above) and foam (right).

“jokes” going around about how the fire break had been built on the “wrong” side of Grant Village. In a lamentably frank moment after the fires, a National Audubon Society board member told the Idaho Conservation League, “The greatest environmental disaster coming out of the Yellowstone Park fire was its failure to burn up West Yellowstone... What a wonderful thing it would have been to reduce all that neon clutter and claptrap to ashes.”¹⁶

During late August and early September, the heavy smoke created a visibility danger for pilots and an irritation if not a health hazard for local residents. They were advised to avoid strenuous outdoor activities, stay indoors, and close the windows; people with respiratory problems were encouraged to leave the area. In response to residents’ concerns, air quality was monitored at four locations by the park and the Montana Department of Health and Environmental Sciences. The recommended standard for particulate concentrations was exceeded on 19 days in Gardiner, Montana, just outside the park’s north boundary, and on 7 days in Mammoth, Wyoming, inside the north boundary. Although concentrations were extremely high during the first week of September in West Yellowstone, Montana, they did not exceed the standard there, nor in Cooke City, Montana.¹⁷

Health and safety issues.

In what some regarded as an unnecessarily risky and nuisance-causing effort to limit the fires’ impact on the local economy, the park remained open to visitors except for September 10, when even the park headquarters in Mammoth had to be evacuated. Most of the developed areas in the park and several surrounding communities had to be evacuated at least once as fire fronts approached. Cooke City and Silver Gate, Montana, outside the park’s northeast entrance, were ordered to evacuate on September 4; an attempt the next day to set backfires was foiled when the wind reversed, blowing the fire to within 50 feet of Cooke City, outside of which 17 cabins and storage sheds were destroyed. But three days later at Old Faithful, the fire was deflected around the historic inn constructed of lodgepole pine and locally quarried stone—perhaps with some help from the oft-derided expanse of parking lot. On September 11, a quarter inch of mixed rain and snow marked the beginning of the end of the 1988 fire season.

By November 18, when the last fire was officially declared out, more than 25,000 firefighters had been to Yellowstone. They had experienced bee stings, minor burns, broken bones, and respiratory problems because of smoke and dust inhalation. In thermal areas, crews walked cautiously to keep from breaking through the thin crust of earth next to hot pools, and several firefighters had to be treated at a Yellowstone clinic after they inhaled gas from the ignition of sulfur deposits. But given the thousands of people involved and the long hours spent in hazardous conditions, it was extraordinary that only two fire-related human fatalities occurred, both of them outside the park and beyond the flames. Pilot Don Kuykendall was killed on September 12 when his plane that had been transporting fire crews crashed on its return to Jackson, Wyoming. Ed Hutton, a Bureau of Land Management employee helping with cleanup operations in the Shoshone National Forest, died after being struck by a falling tree on October 11.

Injuries and fatalities.



The bottom line.

With heroic effort, the firefighters were able to protect human life and property. But the fire suppression effort probably had no significant impact on the number of acres that were engulfed by flames. Once burning under such extreme climatic conditions, the fires were unstoppable by human effort.¹⁸

Of the \$120 million spent on logistical support for fire suppression efforts, about \$33 million were direct payments for services such as gasoline, meals, lodging, rental items, and wages for non-government help such as camp crews. (These figures do not include overtime, hazard duty pay, and other compensation paid to employees already on the government payroll.) Most of the expenditures were made in communities within greater Yellowstone.¹⁹

The Size of the 1988 GYA Fires

- 1988 was the driest summer in 112 years.
- The first major fire began on June 14; the last was declared out on November 18.
- Fires often advanced 5 to 10 miles a day, sometimes 2 miles in a single hour.
- About 1.4 million acres burned within the GYA, including 793,880 acres (36%) of Yellowstone National Park.
- 67 private and government-owned structures were destroyed, mostly cabins and mobile homes; 12 were badly damaged.
- More than 10 miles of power lines and 300 utility poles were damaged or destroyed.
- About 30,000 acres of timber suitable for harvest was destroyed in the surrounding national forests.

The Size of the Firefighting Effort

- A total of more than 25,000 firefighters participated, including 11,700 military personnel and up to 9,600 firefighters at one time.
- 665 miles of firebreaks were dug by hand and 137 miles were bulldozed.
- More than 100 fire engines and 100 aircraft were used, including 77 helicopters using 150 newly created helispots.
- Helicopters carried more than 10 million gallons of water into the park in a canvas bucket or slings attached to a 100-foot steel cable.
- Fixed wing aircraft dropped 1.4 million gallons of fire retardant in the park.
- 18,000 flight hours were logged in the park.
- \$120 million was spent on logistical support.

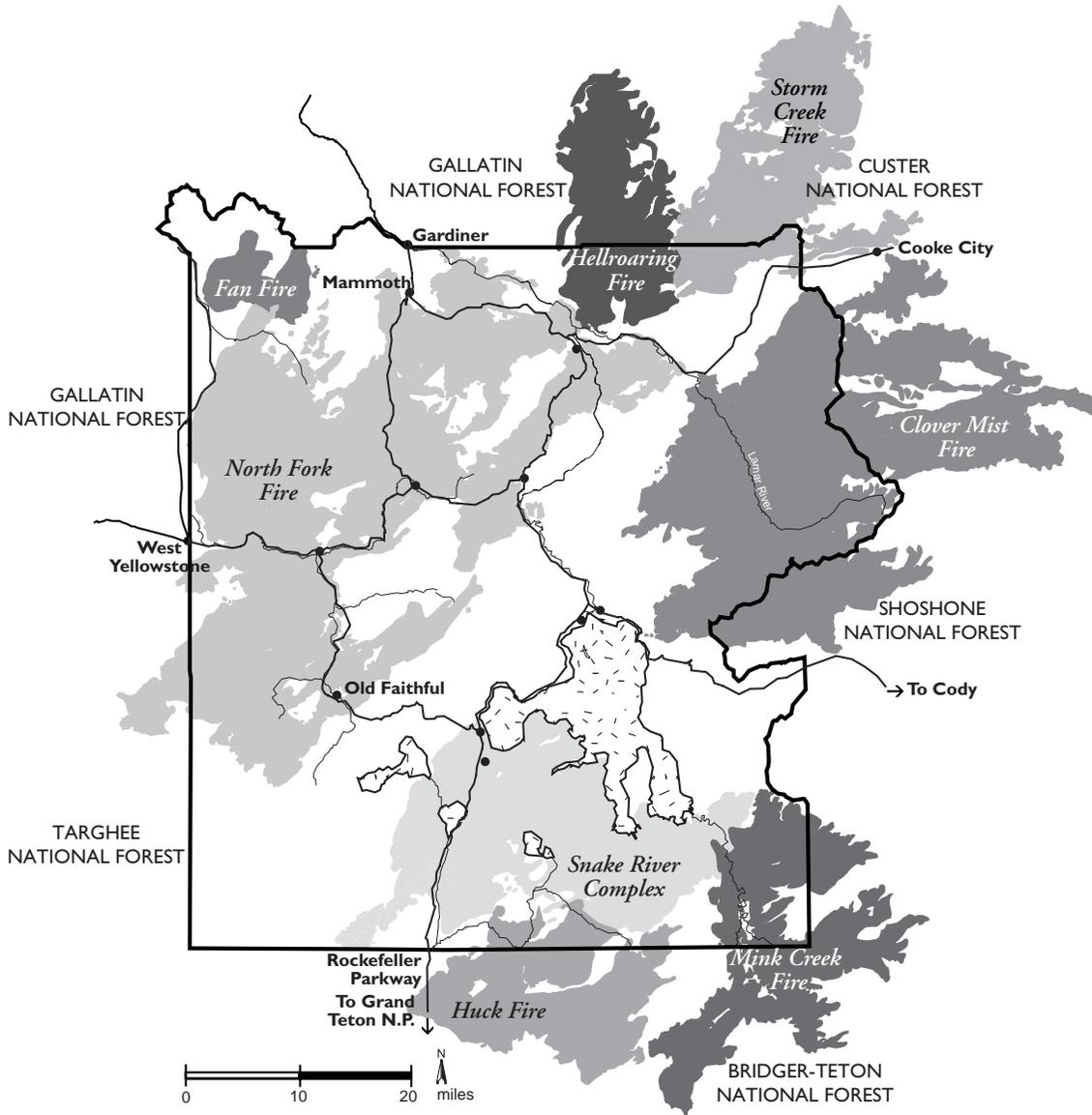


If a tree burns in the forest, and no one sees it...

Just as it was nature that determined when conditions were ripe for the Yellowstone fires to start, it was nature that began lowering the curtain on them with a quarter inch of rain and snow on September 11. On November 18, the North Fork fire was the last to be declared out.

Or was it? Like those trick birthday candles that only appear to have been extinguished, a column of smoke was reported the following June in the backcountry near Broad Creek. An investigation found no evidence of recent ignition, so it must have been a remnant of the North Fork fire. And there may have been other embers that died out later, unobserved by any human.

1988 Yellowstone Fire Perimeters



Fire	Origin	Period	Estimated Acres*
• Storm Creek	Custer NF	June 14 – Sept. 17	95,000
• Snake River	YNP	June 23 – Sept. 19	172,025
• Fan	YNP	June 25 – Sept. 6	20,900
• Clover Mist	YNP	July 9 – Oct. 10	319,575
• Mink	Bridger-Teton NF	July 11 – Sept. 18	116,325
• North Fork	Targhee NF	July 22 – Nov 18	504,025
• Hellroaring	Gallatin NF	Aug. 15 – Sept. 11	66,725
• Huck	Rockefeller Parkway	Aug. 20 – Sept. 18	111,200
Total Burned Area			1,405,775

*Data from the Greater Yellowstone Burned Area Survey, 1988

The Fires as a Media Event

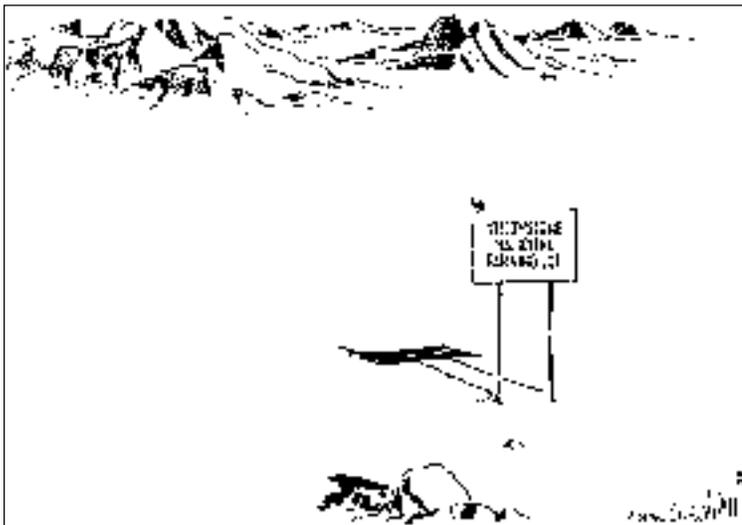
Although local media had been closely covering the story for weeks, the Yellowstone fires did not show up on the national screen until the North Fork fire entered the park on July 22 and headed toward Old Faithful. During the next two weeks, park staff responded to more than 3,000 media requests in person or by phone. Every major newspaper, radio, and television network in the United States was represented, as well as many magazines and foreign correspondents. The Yellowstone Public Affairs Office (PAO) in Mammoth Hot Springs served as the clearinghouse for media assistance as well as phone calls from the general public. As interest in the fires grew and the PAO began receiving more than 200 media inquiries over the phone and in person a day, it was open from 6 A.M. to midnight, seven days a week, and the two public information officers were assisted by 41 park employees from other divisions. Even so, the large volume of calls meant that those from the general public often had to be routed to park staff in other offices.

The PAO also assigned more than 15 employees to serve as information officers in the field as “Incident Command Posts” were set up. An additional information office headed by a U.S. Forest Service public affairs director with a staff of seven was opened in West Yellowstone when the Greater Yellowstone Area Command was established there on July 23 to coordinate firefighting efforts. As of November 15, 1988, the park was still receiving 40 to 70 information requests per day concerning the fires.

False alarms?

When the Yellowstone fires first hit the headlines, most people were unaware of the “natural” fire policy that had been adopted in many national parks. President Reagan, roused to comment on the policy, admitted that he had been oblivious of it until it was pointed out to him on September 14. Americans associated wildland fires with the Forest Service’s Smokey Bear campaign, which was designed to reduce human-caused fires and left the impression that all fire is bad because it destroys forests. The alarmed reactions of media, politicians, and the general public to the Yellowstone fires indicated the widespread misunderstanding of the role of fire in wildland areas.

The media, playing its natural role, tended to emphasize the fires’ most dramatic and visually impressive aspects, sensationalizing the issue with images of towering flames, charred trees, dead animals, and outraged citizens. Fire ecology was of less immediate concern and therefore less likely to be reported on than was the perceived risk to national landmarks by



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allegedly inept land managers. For similar reasons, Yellowstone became the target of media attention in 1988 rather than the Scapegoat Wilderness between Missoula and Great Falls, Montana, which had equally intense fires, or Glacier National Park, where more lives were lost, or even southern California, where there was more property damage and threat to human life.

To create a substantial scandal, it appears, you must be of substantial renown. A two-year study of television coverage of “environmental risk” found that the mass media paid relatively little attention to the scientific degree of risk or the actual severity of a natural disaster.²⁰ “Cultural proximity” (as measured by the number of U.S. tourists visiting the area) was the strongest predictor of coverage, and a small catastrophe in an “important” place was deemed more newsworthy than a bigger one in an unimportant place.

Park staff soon felt as besieged by the media as the gateway communities did by the fires, but the media were not entirely to blame for the resulting public relations debacle. The National Park Service was unprepared at the park, regional, and national level to handle the media demands, and correcting the deficiencies was not a task that could be fully addressed under the enormous pressures of the moment. The park made the best use it could of staff who were both good communicators and had some familiarity with fire suppression issues, but the level of knowledge and ability to keep posted on the latest developments varied from person to person, creating confusion as incomplete or inconsistent information was given out. The media heard both that “Fire is good and we need to let it burn,” and “These fires are bad and we are doing everything we can to put them out.”²¹

Garbled smoke signals.

Sometimes the same spokesperson, deliberately or inadvertently, managed to convey both messages, as was evident in reports on the press conference held by Interior Secretary Donald Hodel at Old Faithful Inn on July 27. NBC announced, “Firefighters reverse policy and use aggressive tactics at Yellowstone,” while the *Billings Gazette’s* headline ran, “Hodel Supports Yellowstone’s Natural Burn Policy.”

The media’s depiction of the fires may have been skewed by the provocative sound bites offered by outspoken residents and business owners who felt their way of life was threatened. According to a study done by Conrad Smith, a journalism professor at Ohio State University, many reporters echoed local residents and politicians who said the fires were still burning after “Black Saturday” on August 20 because of the park’s fire policy.²² The news coverage helped whip up the controversy about Yellowstone’s presumed fire policy without always explaining its rationale, its support from scientific and environmental groups, or the “full suppression” mode in which the park had been since mid-July. Instead, many people received two overall messages from the media: Yellowstone had been reduced to ashes, and it was the fault of park managers. Such coverage led to calls for Superintendent Barbee and National Park Service Director William Mott to be fired.

Catastrophe of the month.

After looking at 936 reports about the fires that appeared during 1988 in three Yellowstone-area newspapers, three national newspapers and in the evening newscasts of the three major television networks, Smith found that most of them focused on the fires themselves rather than on their role in the ecosystem. In a subsequent study of 589 reports about the fires that appeared in seven major newspapers and five magazines from January 1989 through August 1993, he counted only 29 reports that included ecological information in the first three paragraphs, and only five that went beyond a description of the fires’ immediate effects to explain their long-term ecological impact. Many reporters covered the story the way they would an urban or residential fire, where fire is an enemy force that humans must vanquish.

Yellowstone National Barbecue Pit

“As one bleak moonscape after another appeared on the screen, NBC’s correspondent offered a sad benediction on the world’s first national park: ‘This is what’s left of Yellowstone tonight.’ It was a moving, high-impact piece of television. It was also wrong.... Though many Americans were led to believe that Yellowstone had come to look like the bottom of a barbecue pit, its best known features—the steaming geysers and fumaroles, the towering waterfalls along the Grand Canyon of the Yellowstone, the wildlife—survived more or less unscathed. If the first job of the media is to convey accurate information, then we failed in our job.”

—T.R. Reid, writing in the *Washington Post* on July 23, 1989



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Sea of Fire Engulfs Once-Splendid Park

— *Milwaukee Journal* headline, August 12, 1988

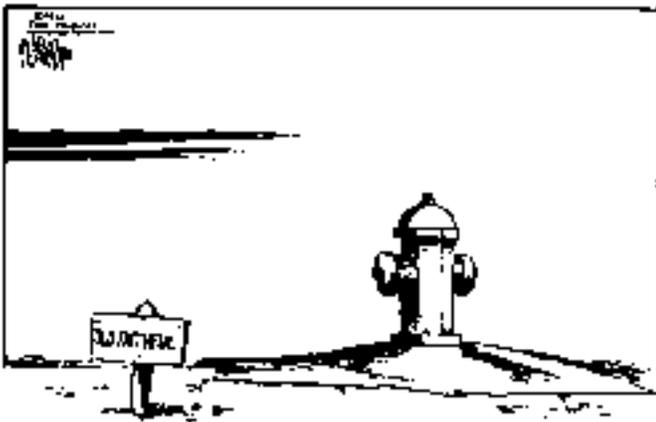
Smith's follow-up surveys of the reporters and their sources showed that many recognized the fires had been poorly reported. The network correspondents who did the most reporting about the fires acknowledged afterward that they had exaggerated the impact of the fires. They attributed the problem to ignorance, preconceived notions about fire, logistical problems in the park with access and communications, deadline pressure, and the sometimes inept Park Service spokespersons.

But commentators such as Micah Morrison, who covered the fires for the *American Spectator*, have argued that the press accurately reflected the most important story—the confusion in Yellowstone over what the park's fire policy was. In his 1993 book, *Fire in Paradise: The Fires in Yellowstone and the Politics of Environmentalism*, Morrison contends that “a review of articles and network footage shows that most reporters were careful to note that the whole park had not been ‘destroyed’ and to try to explain the natural fire policy.” He believes that what the press misreported was the not fires themselves, but the follow-up. “Finding themselves on the ‘wrong side’ of an environmental issue in the immediate aftermath of the fires, they sought to make amends with the spate of ‘rebirth’ articles.”

The retrospective articles that have been done on the Yellowstone fires, which are feature stories rather than hard news, have been more likely to address the fires' ecological aspects rather than the “devastation” they caused. Although many of these post-fire articles have been scientifically superficial, most have expressed a more positive attitude toward Yellowstone than did those published in 1988. In Smith's study of post-fire stories, scientists were named as sources more than three times as often as were tourists and area residents, almost inverse the ratio of stories in 1988.²³

But not everyone's attitude toward the Yellowstone fires has mellowed with time. Some local residents as well as members of the general public remain angry with park management about what happened that summer. An article that appeared in *Science* magazine on the 10th anniversary of the fires in 1998, “Yellowstone Rising Again From Ashes of Devastating Fires” by Richard Stone, failed to convince at least one reader, whose letter appeared in a subsequent issue. “Ecologists who defend the controversial ‘let forest fires burn’ policy that could well destroy the rest of our national parks if it is applied inappropriately do not fully take into account the vast cemetery of burned, rotting, and bug-infested tree stumps that is all that remains of 320,000 hectares of once-beautiful Yellowstone forests, the millions of small animals that were incinerated, and the thousands of tons of topsoil that have washed into stream beds because the stabilizing vegetation was destroyed.”

To help counter such misinformation, the park has bolstered its own efforts to educate visitors about wildland fire. Special inserts on the fires and their impacts were distributed with the park newspaper during the first two years after the fires and again in 1998. A “Yellowstone and Fire” exhibit, which opened in June 1989 at the Grant Village Visitor Center, explains the role of fire in nature in general and at Yellowstone in particular. A 1½-mile boardwalk trail with wayside exhibits winds through burned lodgepole pine and sagebrush communities next to the Madison River to tell the story of the 1988 fires and how they may continue to shape the park in the years to come.



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The Terms of Endurance

In September 1988, when a reporter from a Wyoming radio station asked Superintendent Barbee for his “best estimate as to how much of the park will be lost because of the fires,” Barbee struggled to suppress his disdain. “Lost?” he demanded. As far as Barbee knew, Yellowstone was still the same size it had been before the fires.

It is the “D” words often used to describe the fires’ consequences that still make some park staff cringe: death, defoliation, demise, desolation, destruction, devastation. Although fires can be destructive of human lives, property, and livelihoods, such negative terms are considered inappropriate when referring to fire as an ecological process that is neither good nor bad, but just part of the system.

Yet the “R” words often used to describe Yellowstone since the fires are also problematic: recovery, rehabilitation, renewal, resurrection, restoration, rebirth. “Recovery?” the environmental purist may object. “That would imply that Yellowstone was sick or injured as a result of a perfectly natural process of raging infernos—that there is something wrong with a vista of charred trees, that Yellowstone should be restored to its pre-fire state. Bug-infested tree stumps are beautiful too.”

However, the ecological term used to refer to events such as fire, hurricanes, earthquakes, oil spills, and other sudden impacts on the environment, both natural and human-caused, is another “D” word—disturbance—with clearly negative connotations. It may be a limitation of the English language, or it may indicate that even ecologists are biased in favor of the status quo. For there’s no way you can say, “Yellowstone experienced a major disturbance in 1988” without it sounding like something bad happened. And what comes after the disturbance? The term often used by ecologists is “recovery.”



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Scarred Park Shows Signs of Rebirth

— Milwaukee Journal headline, June 21, 1998